

**ABSTRACT OF THE DISCLOSURE**

5 The present invention provides a system, method and apparatus for targeting gene sequences having one or more phenotypic characteristics using a computer. One or more phenotypic characteristics are selected. A gene sequence is then selected that is known to have the selected phenotypic characteristics. In addition, one or more databases containing cataloged gene sequences are selected. The selected gene sequence is compared to the cataloged gene sequences, and any cataloged gene sequences that contain a portion of the selected gene sequence are extracted. The selected gene sequence is aligned to each portion of the extracted gene sequence and the extracted gene sequences are prioritized based on the alignment of the selected gene sequence. At least one of the prioritized gene sequences is selected based on one or more phenotypic criteria. Finally, one or more degenerate primers are designed to target the selected-prioritized gene sequences.